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PROVISIONAL SPECIFICATION.

[Communicated from abroad by GENESTE HERSCHER & Co., of 42 Rue du Chemin-Vert, Paris, France, Sanitary Engineers.]

Improvements in Disinfecting Apparatus.

I, WOLF DEFRIES of 147 Houndsditch in the City and County of London E.C., Engineer, do hereby declare the nature of this invention to be as follows :—

The object of my invention is to provide a self contained apparatus for
5 disinfection with saturated steam, and the improvements which it embodies are increased simplicity in construction and working, and entire freedom from mechanical risks.

The apparatus consists essentially of a boiler preferably partly enclosed by a
furnace, upon the top of which is mounted a disinfection chamber, the pressure in
10 the boiler and in the chamber being controlled by a liquid seal in an adjoining cylinder.

The boiler is preferably horizontal, and at its lower part is fitted with a tube
having a vertical return terminating at a suitable height above the top of the
boiler in a funnel from which the boiler is filled. Alternatively this pipe may be
15 placed in a covered tank provided with a ball-cock or equivalent contrivance, and connected on the one side to any convenient water supply and on the other side to the boiler, at the level of which the tank is placed, the ball valve closing at the normal water-level of the boiler. In the upper part of the steam space in the boiler a tube is fitted leading to the control cylinder hereinafter described, and at
20 one end of the steam space there is another pipe leading to the disinfection chamber and controlled by a cock or valve. The boiler is fitted with a water gauge, and draw off cock.

The disinfection chamber may have any suitable shape, for instance, that of a horizontal cylinder. A screen preferably of tinned copper, extends round its
25 whole inner surface at a small distance from it, apertures or a longitudinal slot being provided at the top. The lower part of the annular space thus made communicates with a tube from the boiler. A hinged door is preferably provided at each end, secured in a suitable manner. The interior of the chamber is fitted with racks, hooks, or other contrivances for carrying the objects to be disinfected,
30 preferably made movable.

At the lower part of the chamber at the end opposite to the inlet from the boiler is attached a pipe leading to the upper part of a vertical tube fixed in the control cylinder. This tube is closed at top and fitted with a thermometer. The cylinder is partially filled with water or other suitable fluid, and the open tube
35 from the boiler extends in it vertically downwards nearly to the bottom, the tube connected with the disinfection chamber terminating somewhat higher. A sufficient space is left at the top of the cylinder to accomodate the fluid from the vertical tubes when they are filled with steam, and an overflow is provided slightly above the level which the fluid then attains. The cylinder may be provided with a
40 cover through which these tubes pass in the upper part of which a chimney pipe may be fitted. Instead of water any suitable fluid, such as mercury or disinfectant solution, may be used.

[Price 8d.]

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The furnace gases are led through coils arranged within a chamber of suitable size intended for drying, after traversing which they escape up a chimney. This chamber is preferably made with a vertical central division, and the lower part may be separated from the upper, and used for storing fuel or for accomodating a wheeled fuel-box. 5

In operation the boiler is filled through the funnel up to a height indicated on the gauge glass and the fire is lit. When it is desired to disinfect, the valve or cock on the connection between the boiler and the disinfection chamber is opened. The steam enters and circulates in the annular space between the screen and the outer wall of the chamber, and enters the chamber divested of superfluous moisture through the perforations or slot in the top of the screen. 10

It passes out through the pipe connecting the chamber with the control cylinder so soon as the pressure has reached that which corresponds to the depth to which the tube is sealed in that cylinder, and in this way the working steam temperature is determined. The thermometer indicates directly the temperature in the stove. 15 When the pressure in the boiler exceeds that corresponding to the depth to which its vertical tube in the control cylinder is sealed, the steam escapes until the pressure is sufficiently reduced. In this way the possibility of an undue pressure in either boiler or disinfection chamber is absolutely prevented without the use of mechanism of any kind. 20

Dated this Twenty-fifth day of April 1895.

For the Applicant,
GEDGE & FEENY,
Agents.

COMPLETE SPECIFICATION. 25

Improvements in Disinfecting Apparatus.

I, WOLF DEFRIES of 147 Houndsditch, in the City and County of London, E.C., Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:— 30

The object of my invention is to provide a self-contained apparatus for disinfection with saturated steam, possessing increased simplicity in construction and working over those at present in use and entire freedom from mechanical risks.

The apparatus consists essentially of a boiler preferably partly enclosed by a furnace, upon the top of which is mounted a disinfection chamber, the pressure in the boiler and in the chamber being controlled by a liquid seal in an adjoining cylinder. 35

Referring to the accompanying drawings, for a fuller explanation,

Figure 1, is a side elevation and part section of my improved disinfecting apparatus, and 40

Figure 2, is an end elevation and part section of the same.

The boiler A is preferably horizontal, and at its lower part is fitted with a tube B having a vertical return terminating at a suitable height above the top of the boiler in a funnel *b* from which the boiler is filled. Or this tube may be joined to a reservoir furnished with a ball-cock or any equivalent device in connection with a water supply. The level constantly maintained by the ball-cock in this reservoir should be above the level of the boiler at least to such an extent as to correspond to the pressure in the boiler. In the upper part of the steam space in the boiler a tube may be fitted leading to the control cylinder F, hereinafter described, and at one end of the steam space is a pipe C leading to the disinfection chamber D and controlled by a cock or valve. The boiler is fitted with a 50

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water-gauge and draw-off cock. Where desirable to avoid increase of height in the apparatus the boiler may be divided into two or more cylinders.

The disinfection chamber D may have any suitable shape, for instance, that of a horizontal cylinder. A screen *d*, preferably of tinned copper, extends round its whole inner surface at a small distance from it, apertures or a longitudinal slot *d*¹ being provided at the top. The lower part of the annular space thus made communicates with a tube C from the boiler. A hinged door is preferably provided at each end, secured in a suitable manner. The interior of the chamber is fitted with racks, hooks, or other contrivances for carrying the objects to be disinfected, preferably made movable. At the lower part of the chamber at the end opposite to the inlet from the boiler is attached a pipe E leading to the upper part of a vertical tube fixed in the control cylinder F. This tube is closed at top and fitted with a thermometer. The cylinder F is partially filled with water or other suitable fluid, and the open tube from the boiler extends in it vertically downwards nearly to the bottom, the tube connected with the disinfection chamber terminating somewhat higher. A sufficient space is left at the top of the cylinder to accommodate the fluid from the vertical tubes when they are filled with steam, and an overflow is provided slightly above the level which the fluid then attains. The cylinder may be provided with a cover through which these tubes pass, in the upper part of which a chimney pipe *f* may be fitted. Instead of water any suitable fluid, such as mercury, or disinfectant solution, may be used, and whatever the fluid, the whole or a large part of the germs which are initially carried over will be arrested.

The furnace gases are led through coils arranged within a chamber of suitable size intended for drying, after traversing which they escape up a chimney. This chamber is preferably made with a vertical central division and the lower part may be separated from the upper, and used for storing fuel or for accommodating a wheeled fuel-box. Alternatively the hot air may be derived from tubes *a* passing through the steam space in the boiler preferably containing baffles, metal gauze, or other devices for increasing the heating surface, and the drying is then performed in the disinfection chamber, with which the tubes communicate under the control of a cock.

In operation the boiler is filled through the funnel *b* up to a height indicated on the gauge-glass, and the fire is lighted. When it is desired to disinfect, the valve or cock on the connection C between the boiler and the disinfection chamber is opened. The steam enters and circulates in the annular space between the screen *d* and the outer wall of the chamber D, and enters the chamber divested of superfluous moisture through the perforations or slot *d*¹ in the top of the screen. It passes out through the pipe E connecting the chamber with the control cylinder F so soon as the pressure has reached that which corresponds to the depth to which the tube is sealed in that cylinder, and in this way the working steam temperature is determined. The thermometer indicates directly the temperature in the stove. When the pressure in the boiler exceeds that corresponding to the depth to which its vertical tube in the control cylinder is sealed, the steam escapes until the pressure is sufficiently reduced. When the stove is used for current steam the depth of the seal is arranged so that the steam escapes when the working pressure is attained. In this way the possibility of an undue pressure in either boiler or disinfection chamber is absolutely prevented without the use of mechanism of any kind.

The stove may be mounted on a wheeled underframe if desired.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In steam disinfection stoves the control of pressure by means of a seal of water, disinfectant solution, or other fluid, as described.
2. A disinfection stove in which the air for drying is heated by passage through

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tubes surrounded by steam, either with or without baffles or equivalent devices for increasing heating surface.

3. The improved disinfector, constructed, combined and arranged for the purposes and as described and shown in the accompanying sheet of drawings.

Dated this Twenty-fifth day of February 1896.

For the Applicant,

GEDGE & FEENY;

60 Queen Victoria Street, London, E.C., Chartered Patent Agents.

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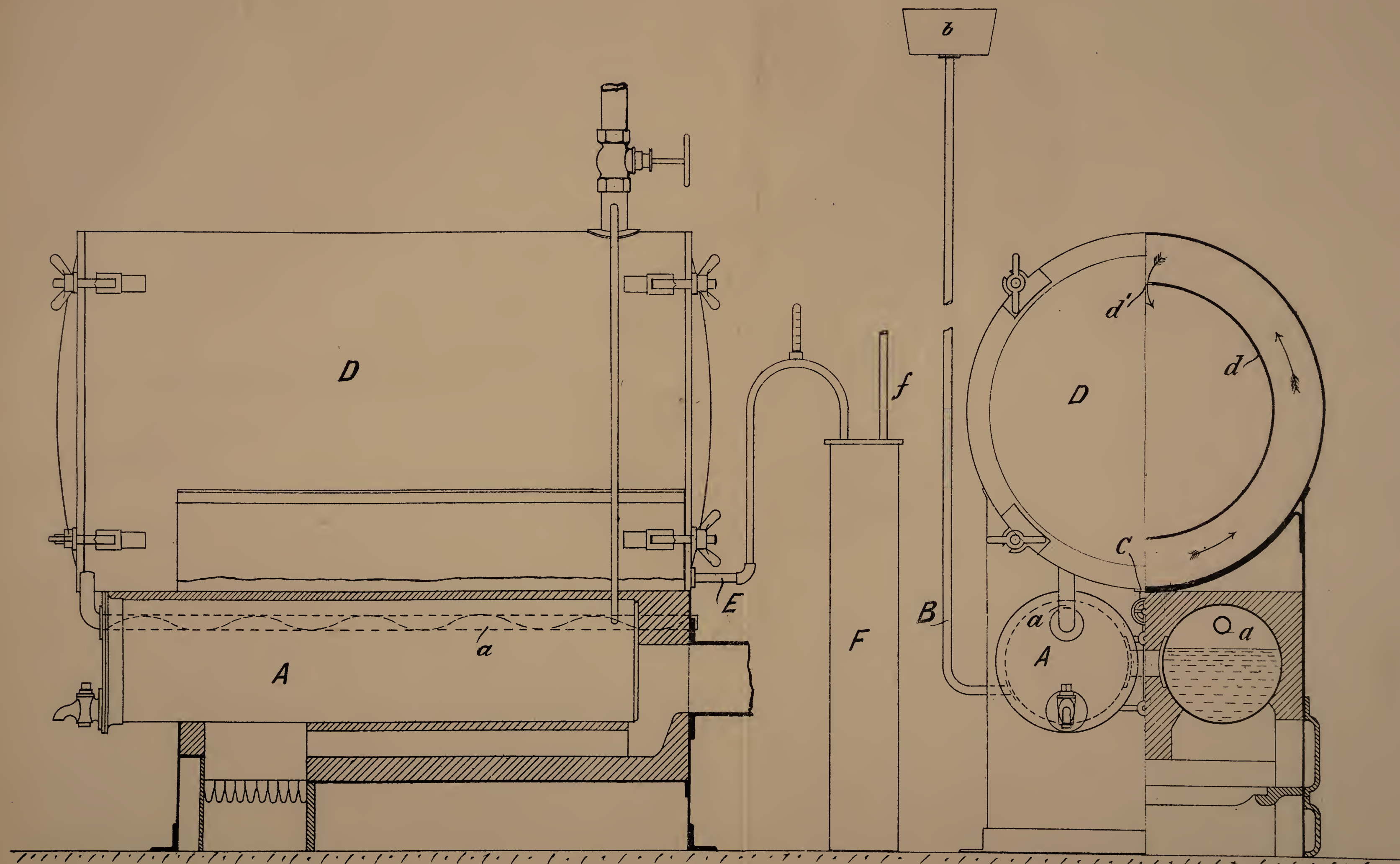


FIG. 1.

FIG. 2.

